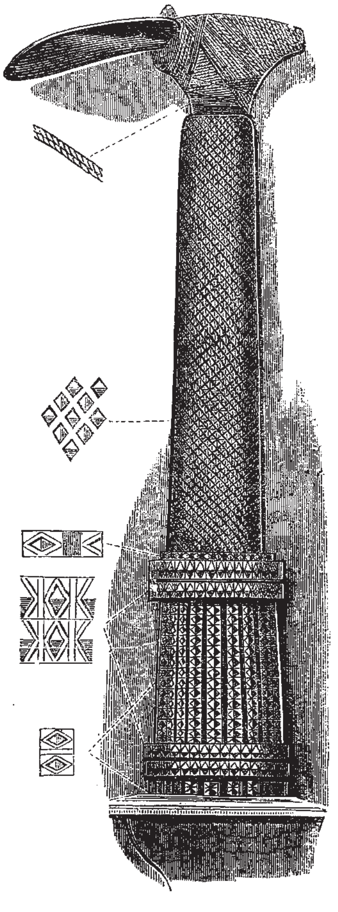
the labour of removing the interior part of the handle must have been very great, and the work exceedingly tedious. Even with European tools it would have been a difficult piece of workmanship, and the difficulty is greatly enhanced by the fact that the native who carved it had nothing but a sharp stone or a shark's tooth lashed to a handle by way of a knife. The head of the adze is made of stone, and is lashed to the handle in a way exactly like that which is employed by the New Zealanders, except that it is far more elaborate. As if desirous of giving himself as much trouble as possible, the maker has employed the finest possible sinnet, not wider than packthread, and quite flat. It is laid on as regularly as if wound by machinery, and the native artist has contrived to produce the most extraordinary effects with it, throwing the various portions into a simulated perspective, and making the lashing look as if there were four distinct layers one above the other."


THE MANGAIAN ADZE

We wish we had space to give the account of the activity of the Monkey Men of New Guinea; of the manipulative skill of the canoe-builders of Fiji, of the Zarabatana with their blow-gun, of the New Caledonian with his sling and javelin, of the extraordinary and cruel rites of the Mandans in the initiation of their youth into manhood, of the cruelty of the Tongans, and a hundred other details of interest; but our readers must refer to the work for themselves. We cannot conclude without a word of praise for the illustrations, which are extremely numerous, whilst many are original, and drawn from implements in Mr. Wood's own collection. We miss an index.

H. POWER

NOTES

IN stating that we believe that the English Eclipse Expedition is now finally arranged, it is due to the Government to add, and we do so with the greatest pleasure, that it is now quite clear that only a small part of the blame, which certainly attaches to some one, can be laid at their doors. In fact, explanations certainly are due from those who have had the management of the now famous Joint Committee. It appears that a deputation was named, and accepted the trust of representing the requirements of Science to the First Lord of the Treasury, which trust they neither fulfilled nor handed back to the Committee in order that another deputation might be appointed. We next hear of a letter written to the wrong Government department; and last of all, we are informed that the letters of the Government department—the last, we believe, written not later than the beginning of September—stating, among other things, that an application should be made in October, when the possibility of granting ships could be better discussed—have not yet been brought before the Joint Committee, which has just been summoned by the Secretary for the 4th of November, that is, tomorrow. It is not for us to censure such conduct as this, but it is our clear duty to point it out, and we hope the matter will be taken up. In spite of this mismanagement, however, we hear that the Government are prepared to aid both by money and ships when an application shall be made, and we cannot doubt that application will be made. There is still ample time to organise an expedition which shall do much good work, though perhaps it is too late to send out and erect the largest class of instruments. Large instruments, however, will be in the hands of the members of the American Government Expedition, so that this is the less to be regretted.

WE have great pleasure in announcing that Prof. Wyville Thomson, F.R.S., has been appointed by the Crown successor to Prof. Allman in the chair of Natural History in the University of Edinburgh. A vacancy is thus caused in the chair of Natural History at Queen's College, Belfast, for which we understand there are already many candidates.

THE difficulty of providing funds for the establishment of a Professorship of Physical Science in the University of Cambridge has been overcome by the colleges, at a meeting of their heads, taking upon themselves a quota of the rates for improvements and other purposes in the town of Cambridge, which was formerly charged upon the University funds. This sum amounts roughly to more than twelve hundred pounds per annum; so that the University will speedily be able to avail itself of the munificent offer of the Duke of Devonshire, and will doubtless proceed at once to establish a Professorship of Physical Science, and obtain the other aids in the way of laboratory, apparatus, and assistants, that the Professor may require.

THE following notices of lectures this term in Cambridge show that there is great increase of activity in teaching the various branches of Natural Science in that university. Professor Liveing gives a course of lectures on the "Experimental Laws of Heat," and also gives instruction in practical chemistry in the University Laboratory three days in the week. Professor Humphry gives a course on "Practical Anatomy," also a course on "Anatomy and Physiology," and connects with these a "Microscopical Demonstration" once a fortnight, and instruction in "Practical Histology" once a week. Professor Newton gives a course on "Zoology and Comparative Anatomy." Professor Willis gives a course on "Mechanics and Mechanism," and their application to "Manufacturing Processes" and the "Steam-engine." Professor Miller gives a course on "Elementary Crystallography and Weighing." Professor Sedgwick gives a course on "Geology." In Downing College, Dr. Bradbury lectures on "Comparative Anatomy," and Mr. Danby on "Geology." In Trinity, Mr.

Trotter lectures on "Electricity," Dr. Michael Foster on "Physiology," and Mr. Trotter on "Elementary Botany." In St. John's, Mr. Main lectures on "Chemistry," and gives practical instruction in the College Laboratory; and Mr. Bonney lectures on "Geology." Most of these College lectures are open to all the students of the University.

The Natural Science Demyship of 75*l.* per annum for five years, at Magdalen College, Oxford, which was not awarded at the last examination, is announced for open competition in March next. Further particulars will be sent on application to the College.

The splendid Physical Laboratory lately built at Oxford is opened this term for practical instruction in Physics, under the superintendence of Professor R. B. Clifton, F.R.S., assisted by two demonstrators.

A chemical society has been established at Zurich under the presidency of Dr. Wislicenus.

We regret to have to announce the death, on October 26, of Dr. Thomas Anderson, Superintendent of the Calcutta Botanic Gardens. Dr. Anderson had greatly assisted in the establishment of the Cinchona plantations in British India, was the author of a large number of papers on botanical subjects, and at the time of his death (on sick leave in this country) was engaged, in conjunction with Dr. Hooker and Dr. Thomson, on the new Flora of India.

The death is announced of the Rev. F. Bancks Falkner, late head-master of Appleby Grammar School, a gentleman well known from his numerous and elaborate meteorological reports and letters, which mostly appeared in the pages of the *Standard* and *Scientific Opinion*.

At the first of the winter *soirées* to be held on Monday evening, November 14, at 8 o'clock, at 27, Harley Street, Mr. A. R. Wallace will read "An Answer to Dr. Hume, Lecky, and others, against Miracles." A discussion will be invited.

The following officers are proposed for election by the Council of the London Mathematical Society at the general meeting to be held on Tuesday evening next:—President, W. Spottiswoode; Vice-presidents, Prof. Cayley, Prof. Henrici, Prof. H. J. S. Smith; Treasurer, Prof. Hirst; Secretaries, H. Jenkins, R. Tucker.

The fourth opening *conversazione* of the Hackney Scientific Association took place on the 25th October, at the Meeting Rooms, New Tabernacle, Old Street Road, E.C. The objects exhibited were lent entirely by the members and some friends, and comprised an unusually fine display of microscopes of the most powerful description. Geology was well represented by a very rare collection of fossil mammalian teeth from the Freshwater Post-tertiary beds in the Lea Valley, exhibited by Mr. R. F. Olliver, also a fine series of Coal-measure fossils by Mr. W. Appleford. Astronomy was unusually well represented by numerous objects, amongst which were two refractor telescopes, exhibiting convenient forms of mounting, also numerous sketches by Mr. W. R. Birt, exhibiting the most recent progress in selenography. We must not omit to notice a numerous collection of astronomical drawings, by Mr. A. P. Holden, amongst which were four very fine sketches of the recent great sun-spot.

A Natural History Society was established a year ago in King Edward VI. Grammar School, Birmingham, and is now in active operation. A school collection has been commenced, with a view to a future museum.

The Special Commissioners appointed for the purposes of the Public Schools Act, 1868, in virtue of the powers conferred upon them by that Act, have made five statutes for determining and establishing the constitution of the New Governing Bodies of the Schools of Winchester, Harrow, Rugby, Shrewsbury, and Charterhouse. These statutes have been laid before Her Majesty in Council, and are published in the *London Gazette* of Tuesday, Oct. 25. Notice is given that it is lawful for the bodies or persons authorised so to do in that Act, within two months from the date of the publication of this notification, to petition Her Majesty in Council to withhold her approval from the whole or any part of such statutes.

As the subject of hereditary deformities is attracting some attention in our columns, it may be worth while to call attention to Brown-Séquard's experiments on epileptic guinea-pigs detailed at the recent meeting of the British Association. Dr. Brown-Séquard produced epileptic fits in the guinea-pigs either by the section of one-half of the spinal cord, or by the division of the sciatic nerve on one or both sides. During the fits it sometimes happens that the hind foot gets between the teeth, and is bitten. The animal, on recovery from the fit, tastes the blood, and if it be one in which the sciatic nerve has been divided, proceeds to nibble off the two outer toes, which have entirely lost their sensibility from the operation on the nerve. In breeding from pairs of this kind, the offspring is without the two toes of which the parents have deprived themselves; and in these cases all the offspring become, as they grow up, perfectly epileptic; while in ordinary cases epilepsy is only rarely transmitted hereditarily. Other peculiarities existing in these epileptic guinea-pigs were also found to be transmitted to their offspring; and in dissection of the hereditarily malformed animals, a node was found on the sciatic nerve corresponding to that formed after section of the nerve in the parent.

It may interest some readers to know that the Board of Trinity College, Dublin, have expended about 2,000*l.* in draining the College park. Situate as the park is, in the very centre of the city, its drainage will confer a considerable benefit on the city. Dublin will also be much improved by the space of ground which the College authorities are giving to the city in College Green, as well as ornamented by the new cut stone wall and handsome iron railings which take the place of the old irregular quadrangle in front of the College. The College share of the expenses amounts to 2,000*l.*

We have received the half-yearly Report of the Marlborough College Natural History Society, from which it appears that the Society has entered on the seventh year of its existence. During these years it has undoubtedly greatly strengthened the love of Natural Science among the *alumni* of the College, an evidence of which is the publication during the last half-year of "The Birds of Marlborough" by an old member of the Society, E. F. im Thurm, a little volume for which we would wish a greatly increased circulation. The officers regret that the number of members of the Society is not yet commensurate with the number in the College who take an interest in Natural History. In no more practical way can the love of a study of nature be fostered than by the encouragement of societies similar to this.

It is stated that the Botanical Gardens at Strasburg were used during the siege as a burying-ground.

The twentieth part of the late Prof. Schnizlein's "Iconographia familiarum naturalium regni vegetabilis," is published under the superintendence of Dr. Eichler, of Munich. This magnificent work, commenced seven and twenty years since, is now completed in twenty parts.

As Colombia in the last year exported about 3,500,000lbs. of cinchona-bark, valued at 87,000*l.*, the Government there naturally looks with some interest on the trade, and is desirous to improve it. It is curious to see in the official report of the Secretary of the Treasury a detailed account of the successful measures of our Government for the cultivation of cinchona in India.

An earthquake was felt generally in the Natal colony and the Orange River Free State, about 3.45 P.M. on the 3rd August. It did no material damage. It was recorded at Bloem Fontein, in the Free State, and at Pietermaritzburg, Durban, New Guelderland, Ladismith, Noodsberg. The course appears to have been from N.W. to S.E.

The three most recent parts of the *Bulletin* of the Imperial Academy of Sciences of St. Petersburg contain the following articles :—Quelques propriétés du fer déposé par la voie galvanique, R. Lenz ; Rapport sur un voyage entrepris dans l'intérêt de la linguistique, F. J. Wiedemann ; Remarques sur les Echinoderes, El. Metschnikoff ; Sur le poil du *Rhinoceros tichorinus*, J. F. Brandt ; Sur less congruences binômes exponentielles à base 3 et sur plusieurs nouveaux théorèmes relatifs aux résidus et aux racines primitives, V. Bouniakowsky ; Note relative à une demonstration, donnée par Cauchy, des équations générales de l'équilibre, J. Somoff ; Sur les sentences de Publilius Syrus, A. Nauck ; La Métrique pâlie Vuttodaya, J. Minayeff ; Sur l'histoire composée en arménien par Thoma Ardzrouni, X^e s., M. Brosset ; Sur un théorème relatif à la théorie des résidus et de son application à la démonstration de la loi de reciprocité de deux nombres premiers, V. Bouniakowsky ; Remarques et rectifications concernant l'histoire naturelle des Alcides, J. F. Brandt ; Sur le symbole de Legendre $\left(\frac{a}{p}\right)$, V. Bouniakowsky ; Embryologie du *Phthirius pubis.* (avec une Planche.), Os. Grimm ; De l'influence de la chaleur sur l'élasticité du caoutchouk, J. Schmulewitsch ; Notice sur Ak-tau et Kara-tau, montagnes dans la presqu'île de Mangyschlak, côte orientale de la mer Caspienne, G. V. Helmersen ; Sur les dérivés de la série isocaprine, A. Borodin ; Détermination du coefficient constant de la précession au moyen d'étoiles de faible éclat, M. M. Nyrén.

A rival to the far-famed Mont Cenis tunnel is announced from America. The tunnel through the Hoosac Mountain, on the Troy and Greenfield Railway, is steadily progressing, and has now overcome the great difficulties with which it started. It is 4⅘ miles in length (more than half that of Mont Cenis), and of this distance about one-third is already penetrated. The work is actively proceeding night and day from both ends, and it is expected it will be finished before the expiration of the contract in 1874.

Further favourable reports of ipecacuanha cultivation in India have been received. The Conservator of Forests states that the plants in the gardens at Nelamboor are doing well, and that some of the fleshy leaves were four inches long.

A UNIVERSITY FOR TEXAS

The Rev. W. H. Sent has been for some time past in Europe, with letters from the late President of the United States, the Governor of Texas, and other distinguished Americans, as the agent of the Soule University and the Chappell Hill Female College, two literary institutions located at Chappell Hill, Washington county, in the State of Texas. His aim is so to enlarge and furnish them, especially the University, which has a medical department in Galveston, as to develop a great and permanent centre of learning and science. Considering the vastness and the resources of Texas, its position as bordering on semi-civilised regions beyond, the rapid increase of its population, which includes a large European element, and its growing commercial relations with Europe, especially with this country, such an enterprise as this must commend itself as one of great importance, and of general interest.

The degree of success that has attended the agency is, indeed, extraordinary. Mr. Sent received contributions of books, specimens, &c., from various departments of the United States Government, from Prof. Agassiz, Yale College, the Smithsonian Institution, and other eminent sources in America ; and in Europe from the Emperor, the French Government, the Jardin des Plantes, the great French authors, &c., and the same line of success was continued in Belgium, Holland, Denmark, the various German States, and elsewhere. We are glad to know that he is meeting with encouragement in London from the Admiralty, the Geological Survey, the University of London, from many of our publishing houses and other sources. The agent is applying to many of our Learned and Scientific Societies for their transactions, which will, we doubt not, be cheerfully contributed. The agency involves a patient, persevering effort to accomplish a very important work. We most heartily commend the enterprise to the friends of education in this country.

Any contributions of books, or of botanical, geological, or mineralogical specimens may be sent (with a statement of the sources whence they come) to care of Messrs. Trübner and Co., 60, Paternoster Row, London, or to Messrs. Caleb Grimshaw and Co., Liverpool.

EARTH CURRENTS

It has been my pleasure at different times to call attention to the connection that exists between the Auroræ Boreales and that great apparent rush of electricity through the crust of the earth which eagerly seizes upon the easy paths, offered to its passage by the wires of the telegraph, and by filling them with electricity, produces what are called "earth currents," or "deflections." The aurora is always accompanied by such displays, but it is rarely in England that they are of such strength as absolutely to break down telegraph communication. The earth currents of Oct. 24 and 25 have only been equalled by those which occurred in 1859.

The following extracts from the diary of one of the large telegraph stations in the South of England will be found interesting :—

Oct. 24,	5.0 P.M.	Slight deflections on all long circuits.
„	5.30 „	Gradually increasing.
„	6.0 „	Very strong ; circuits suspended for ten minutes.
„	7.0 „	Gradually decreasing.
„	8.15 „	All circuits right.
Oct. 25,	3.0 „	Deflections, which have been intermittent all day, or very strong.
„	3.30 „	Circuits nearly all stopped.
„	4.0 „	Working through on some circuits, but slow.
„	5.0 „	Deflections decreasing.
„	5.45 „	On again; all circuits suspended.
„	6.15 „	Deflections decreasing again.
„	7.0 „	Circuits clear.

This is only a sample of what occurred simultaneously all over England, and probably the globe. The currents were very irregular in their direction and very variable in their strength. Circuits running S.W. to N.E. are usually most powerfully affected, but on this occasion all directions seemed equally affected.

Where two or more wires run between two stations, the effect of these currents upon the working is easily remedied by substituting the second wire for the earth to complete the circuit. This practice was largely adopted on Monday and Tuesday last.

The most striking fact observed was that on each occasion the currents *ceased* when the auroral display *commenced.* I have not noticed this before, probably because the cessation of the one phenomenon and the first appearance of the other have scarcely ever before been so strongly indicated.

W. H. Preece